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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,301	10/11/2003	William Paynter Hanson	HANS-01	3326

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EXAMINER
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SINES, BRIAN J

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/684,301

Applicant(s)

HANSON, WILLIAM PAYNTER

Examiner

Brian J. Sines

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 – 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1. Regarding claim 1, it is unclear if in addition to temperature, the frequency and impedance of the resonators are required to be measured by the recited control circuit. In addition, the means for analyzing data, as recited in part (f) appears incomplete. Does the means for analyzing the data collected from the control circuit identify and quantify the detected biological and chemical agents?
2. Regarding claim 10, the claimed method appears incomplete. Although claim 10 recites the activation of the heater element in step (e), it is unclear if or when the temperature of the resonator, which comprises an integrated heater, is controlled or varied during the execution of the claimed methodology. It appears that the method would be required to positively recite a step of controlling or varying the resonator temperature in order to provide accurate measurements (see applicant's specification, pages 5, 8, 9, 12, 14 & 15).

***Response to Arguments***

1. Regarding the rejection of claims 1 – 4 and 8 under 35 U.S.C. 103(a) as being unpatentable over Caron et al. (U.S. Pat. No. 5,992,215 A), Applicant's arguments and amendments filed 2/8/2005, have been fully considered and are persuasive. This rejection has been withdrawn.
2. Regarding the rejection of claim 9 under 35 U.S.C. 103(a) as being unpatentable over Caron et al., as applied to claims 1 – 4 and 8, and further in view of Neuberger (U.S. Pat. No. 5,065,140), Applicant's arguments and amendments filed 2/8/2005, have been fully considered and are persuasive. This rejection has been withdrawn.
3. Regarding the rejection of claims 1 – 3 and 6 under 35 U.S.C. 103(a) as being unpatentable over Furuki et al. (U.S. Pat. No. 5,411,709 A) in view of Bloch et al. (U.S. Pat. No. 4,748,367), Applicant's arguments and amendments filed 2/8/2005, have been fully considered and are persuasive. This rejection has been withdrawn.
4. Regarding the rejection of claim 9 under 35 U.S.C. 103(a) as being unpatentable over Furuki et al. and Bloch et al., as applied to claims 1 – 3 and 6, and further in view of Neuberger (U.S. Pat. No. 5,065,140), Applicant's arguments and amendments filed 2/8/2005, have been fully considered and are persuasive. This rejection has been withdrawn.

*Allowable Subject Matter*

1. The indicated allowability of claims 5, 7 & 10 – 18 is withdrawn in view of the new rejection under 35 U.S.C. 112, second paragraph.

2. The following claim 1 drafted by the examiner and considered to distinguish patentably over the art of record in this application, is presented to applicant for consideration:

Claim 1: An integrated sensor device for use in identifying biological and chemical agents, the sensor comprising:

- (a) an array of piezoelectric resonators having electrodes, each of the resonators operating in a mode selected from the group consisting of a single mode and a dual mode;
- (b) two or more different sensor coatings, each one disposed on one of the resonators, the sensor coatings collectively designed to differentially adsorb to one or more of the biological and chemical agents for measuring orthogonal physical properties;
- (c) one or more heater elements, each one integrated to one of the piezoelectric resonators;
- (d) a control circuit for exciting the piezoelectric resonators and for measuring frequency and impedance;
- (e) a control circuit configured for varying the temperature of the heater elements and for measuring the temperature, frequency and impedance of the resonators at a plurality of temperatures in order to generate data for use in thermal-gravimetric analysis; and

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- (f) means for analyzing data collected from the control circuits to identify the biological and chemical agents.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Sines, Ph.D. whose telephone number is (571) 272-1263. The examiner can normally be reached on Monday - Friday (11 AM - 8 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

